



## DATA BRIEF

# MASSACHUSETTS

## Special Emphasis Report: Infant and Early Childhood Injury, 2012

Injury Surveillance Program, Massachusetts Department of Public Health

July 2015

### Childhood Injury is a Major Public Health Problem

Injuries are a major public health problem across the United States and in Massachusetts (MA). Injuries are not random chance events. Most injuries follow a predictable sequence of events and can be prevented using specific strategies.

In 2012, a total of 18 MA children ages 0-5 died as a result of an injury. In addition to these deaths, there were 788 injury-related hospitalizations, or a rate of 179 per 100,000 MA children these ages and 53,193 injury-related emergency department (ED) visits, or a rate of 12,070 per 100,000 MA children ages 0-5.<sup>1</sup> These numbers do not include outpatient observation stays or children treated in a physician's office or at home.

*In 2012, there were over 53,000 ED visits by Massachusetts children ages 0-5 for injuries – an average of 146 ED visits each day.*

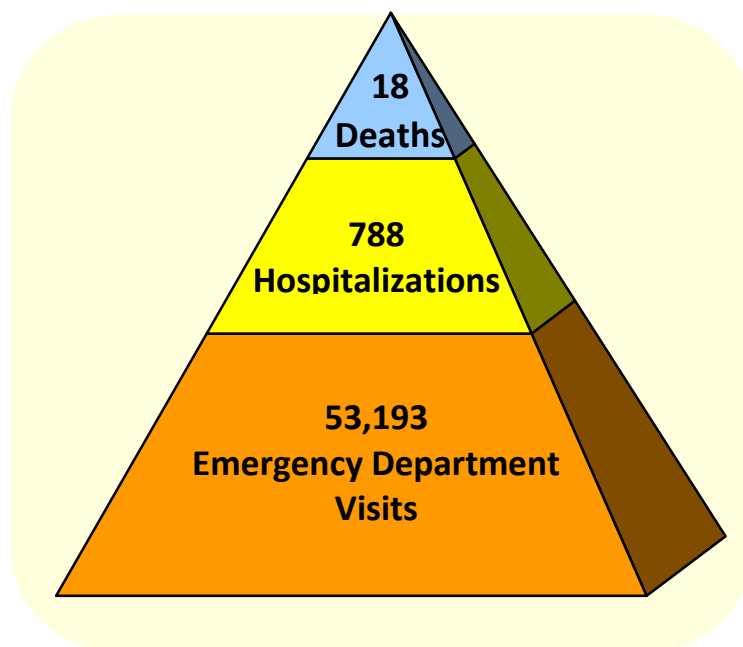


Figure 1: Annual Injuries among Children Ages 0-5 Years, Massachusetts, 2012

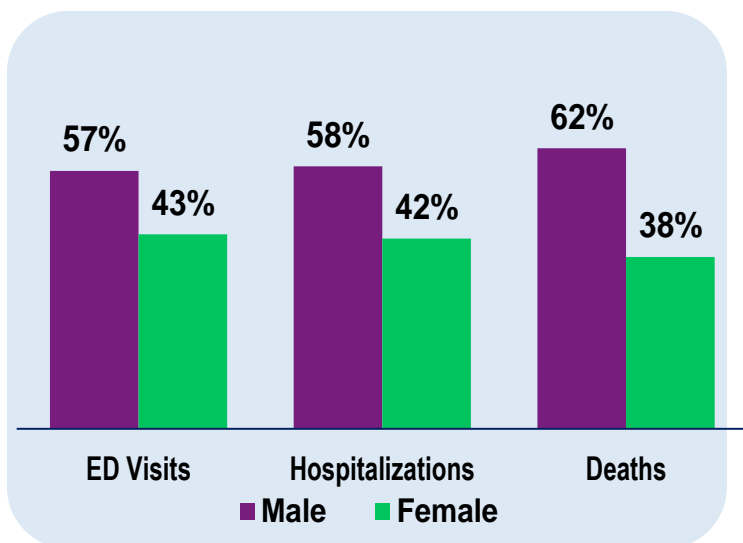


Figure 2: Percent of Injury ED Visits (2012), Hospitalizations (2012) & Deaths (2008-2012<sup>2</sup>) by Sex, Children Ages 0-5 Years, Massachusetts

### Childhood Injury by Sex

Males account for a greater percentage of injuries in Massachusetts children ages 0-5 than females. In 2012, males these ages accounted for 57% of injury ED visits and 58% of injury hospitalizations. Between 2008 and 2012<sup>2</sup>, males again accounted for six out of ten (62%) injury deaths among Massachusetts children ages 0-5.



1. This report uses CDC injury definitions. Injury counts may therefore differ from those in other Massachusetts reports. Under CDC definitions, deaths and transfers are included in hospitalization and ED visit data. Observation stays are not included with hospitalization data in this report. See Data Notes on page 7 for further details.
2. Given the low number of such deaths, data for the most recent 5-year period were combined to increase the stability of rates.

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### Injury Deaths in Infants

Between 2008 through 2012<sup>1</sup>, 34 Massachusetts infants under one year of age died from causes classified as injuries. Half of these infant deaths were due to unintentional injuries (50%, n = 17) and one-quarter (24%, n = 8) were homicides.

#### Sudden Unexpected Infant Death<sup>2</sup>

While Sudden Unexpected Infant Deaths (SUID) are not always classified as “injuries”, they are included here as SUID is a leading cause of death in MA infants and many have been found to be associated with risk factors for suffocation, such as unsafe sleep positions and bedding environments. From 2008 to 2012, there were on average 38 Sudden Unexpected Infant Deaths each year in Massachusetts (data not shown).

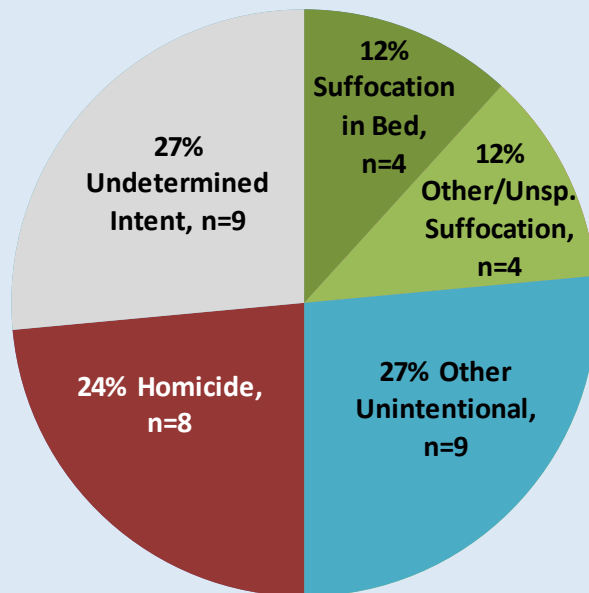


Figure 3: Injury Deaths among Infants Less than One Year, Massachusetts, 2008-2012<sup>1,3</sup> (N = 34)

### Injury Deaths in Young Children

From 2008 through 2012<sup>1</sup>, 69 Massachusetts children ages 1-5 died due to an injury. The majority (72%, n = 50) of these injuries were unintentional. Drowning and pedestrian injuries were the leading causes of unintentional injury death in this age group.

Of the 16 drowning deaths of young children between 2008 and 2012, the majority (69%, n = 11) occurred in swimming pools.

Homicides accounted for one in five (20%, n=14) injury deaths of young children ages 1-5 during this time period. Two-thirds of these young victims (64%, n =9) were children ages one and two years old.

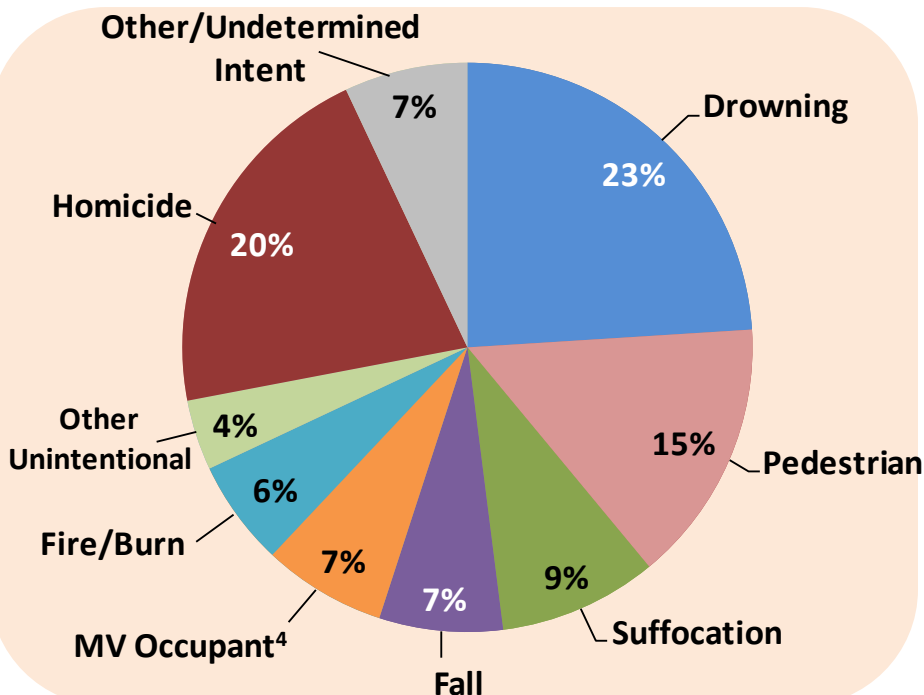


Figure 4: Injury Deaths among Children Ages 1 – 5 Years, Massachusetts, 2008-2012<sup>1</sup> (N = 69)

1. The most recent 5-year period where data are available. Percentages may not total 100% due to rounding.

2. Sudden Unexplained Infant Death includes deaths of infants under one year of age that are classified as Sudden Infant Death Syndrome (SIDS) or Accidental Suffocation in Bed, or have an undetermined cause of death.

3. Causes with less than 3 deaths are not shown as separate pie slices.

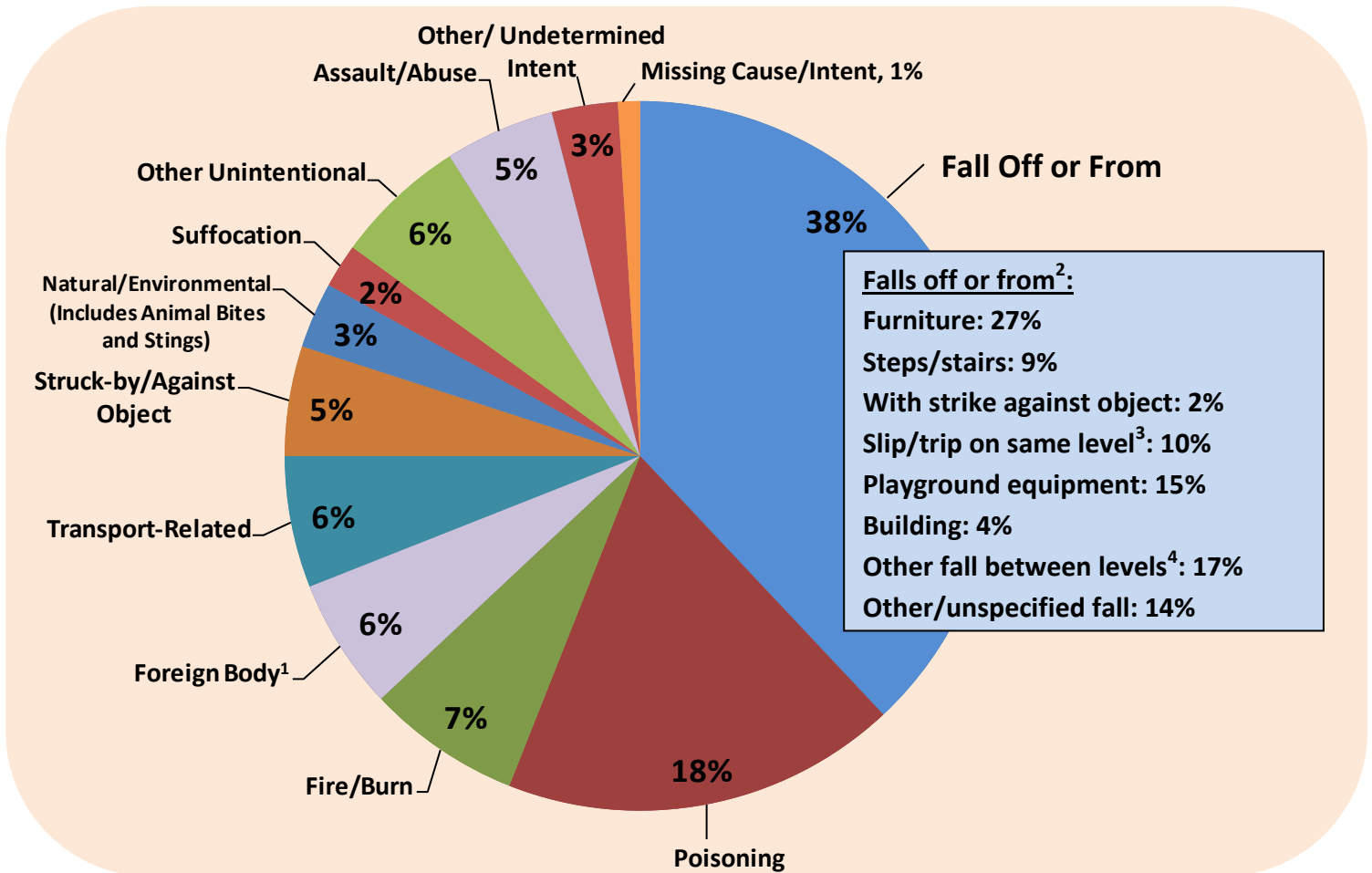
4. Motor Vehicle (MV) occupants include MV-unspecified persons.



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### Injury-Related Hospitalizations



**Figure 5: Injury-Related Hospitalizations among Children Ages 0 – 5 Years, Massachusetts, 2012 (N = 788)**

- In 2012, there were 788 injury-related hospitalizations of Massachusetts infants and children ages 0-5 years, of which 92% were unintentional (n = 724). The three leading causes of injury-related hospitalization in this age group were unintentional falls (38%, n = 300), poisoning (18%, n = 144) and fire/burn injuries<sup>1</sup> (7%, n = 52).
- One in four (25%) or 195 of these hospitalizations involved a traumatic brain injury (TBI). Infants under age one were three times more likely than children ages 1-5 to have sustained a TBI (49% vs. 16%). Of the 105 TBI-related hospitalizations among infants, 71% were due to a fall, half (50%) of which were from furniture. (Data not shown).
- Of the 144 hospitalizations of young children for poisoning, 89% were due to medications/drugs. Such poisonings involved a broad range of medication/drug types, such as opiates and other pain-killers, tranquilizers, stimulants, cardiovascular drugs, hormones, anti-depressants, etc. Children ages one and two years old represented two-thirds (68%) of young children hospitalized for medication/drug poisoning.

1. Includes objects accidentally entering an eye, ear, nose or other orifice, excluding inhalation of a foreign body, which is included in suffocation.

2. Percentages may not total 100% due to rounding.

3. Includes falls from skateboards, skis, snowboards, etc.

4. Includes falls from one level to another *other than* falls from furniture, steps/stairs, playground equipment or buildings.

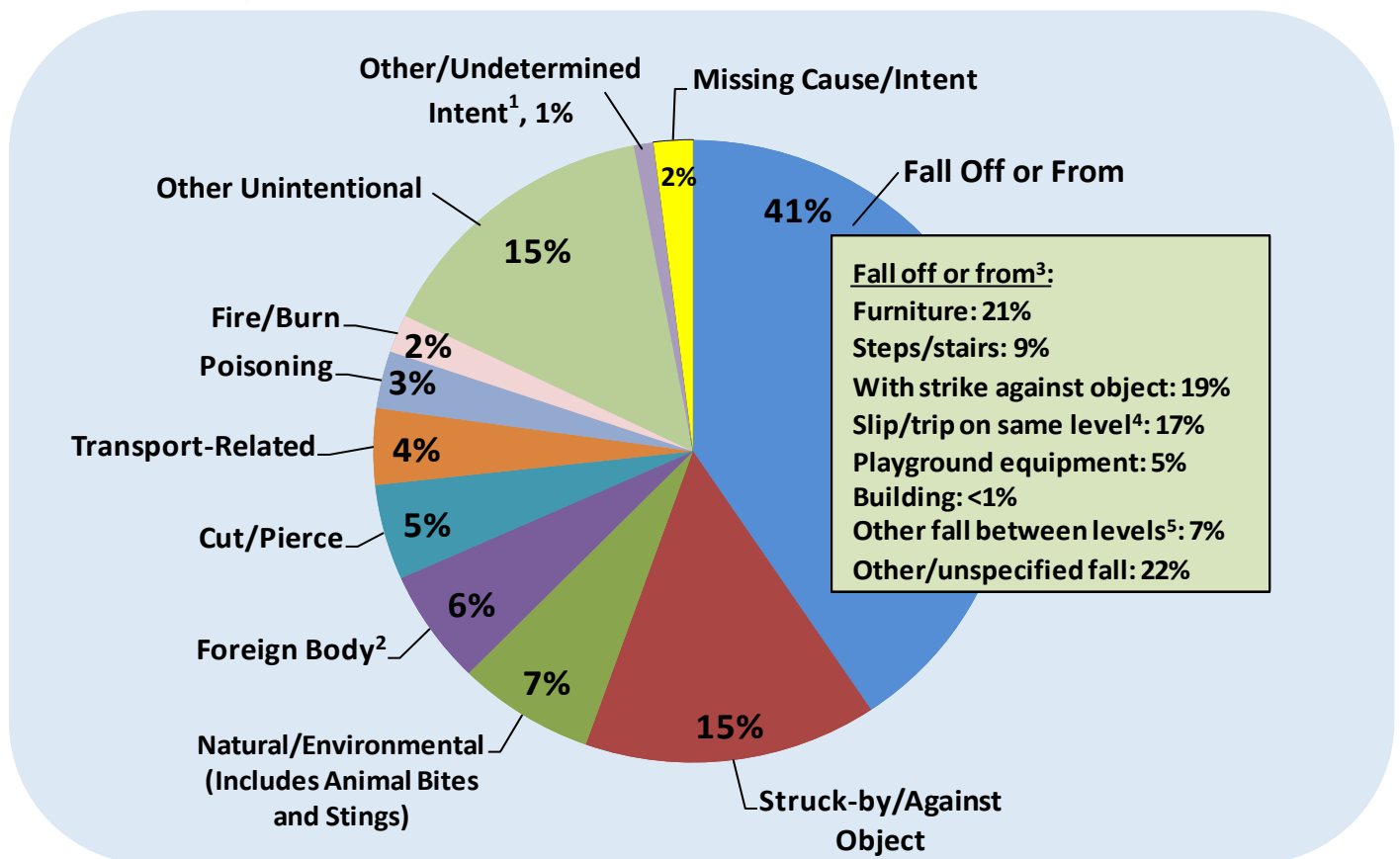


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### Injury-Related Emergency Department Visits

- In 2012, there were 53,193 injury-related emergency department (ED) visits of Massachusetts children ages 0-5 years, of which 97% were unintentional. The leading causes of these ED visits were unintentional falls (41%, n = 21,709), being struck by or against an object (15%, n = 8,018) and natural/environmental causes (7%, n = 3,547).
- One in seven of these injury-related ED visits (15%, n = 7,727) involved a traumatic brain injury (TBI). The leading causes of TBI among children ages 0-5 were unintentional falls (74%, n = 5,720) and being struck by or against an object (18%, n = 1,378). Only 3% of such cases were transport-related (n = 267). (Data not shown.)
- Of injury-related ED visits in 2012, infants under age one were three times as likely as children ages 1 to 5 to have sustained a TBI (35% vs. 12%). Of the 1,921 ED visits for TBI-related injuries among infants, 83% were due to a fall, of which over half (51%) involved falls from furniture. (Data not shown).
- Of the 3,547 ED visits of children ages 0-5 for natural/environmental injuries, 21% (n = 750) involved dog bites and 73% (n = 2,585) involved other bites or stings. Less than 1% (n = 23) of such ED visits involved excessive heat. (Data not shown.)



**Figure 6: Injury-Related Emergency Department Visits among Children Ages 0 – 5 Years, Massachusetts, 2012 (N = 53,193)**

1. Includes assault, self-inflicted, or legal/war-related and injuries of undetermined intent.

2. Includes objects accidentally entering an eye, ear, nose or other orifice, but excludes inhalation of a foreign body.

3. Percentages may not total 100% due to rounding.

4. Includes falls from skateboards, skis, snowboards, etc.

5. Includes falls from one level to another *other than* falls from furniture, steps/stairs, playground equipment or buildings.



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**Table 1: Injury-Related Hospital Discharges and ED Visits among Children Ages 0 -5 Years, by Cause, Intent and Age Group, Massachusetts, 2012**

Cause and Intent	Infants less than 1 Year		Children Ages 1-5 Years	
	HD & ED Total Count <sup>1</sup>	Percent	HD & ED Total Count <sup>1</sup>	Percent
<b>Unintentional Injuries</b>	5,454	96%	46,776	97%
Cut/pierce	141	3%	2,258	5%
Drowning/submersion	<11	<1%	38	<1%
Falls ( <i>off/from</i> ):	2,933	52%	19,076	40%
<i>Furniture</i>	1,415	25%	3,309	7%
<i>Steps/stairs</i>	261	5%	1,756	4%
<i>With strike against object</i>	246	4%	3,793	8%
<i>Slipping/tripping/stumbling</i>	121	2%	3,515	7%
<i>Playground equipment</i>	--- <sup>2</sup>	--- <sup>2</sup>	1,204	3%
<i>Building</i>	0	0%	46	<1%
<i>Other fall from one level to another</i>	391	7%	1,130	2%
<i>Other/unspecified fall</i>	499	9%	4,323	9%
Fire/Burn	214	4%	984	2%
Foreign Body	258	5%	2,739	6%
Natural and Environmental	180	3%	3,392	7%
<i>Excessive heat</i>	--- <sup>2</sup>	--- <sup>2</sup>	14	<1%
<i>Dog bites</i>	34	1%	730	2%
<i>Other bites/stings/animal injury</i>	107	2%	2,483	5%
<i>Other natural/environmental</i>	39	1%	165	<1%
Poisoning	164	3%	1,600	3%
Struck-by/against object	535	10%	7,520	16%
Suffocation	43	1%	71	<1%
Transport-related	281	5%	2,004	4%
<i>Motor vehicle (MV)-occupant</i>	262	5%	1,337	3%
<i>Bicycle/tricycle (MV &amp; non-MV)</i>	0	0%	411	1%
<i>Pedestrian (MV &amp; non-MV)</i>	--- <sup>2</sup>	--- <sup>2</sup>	90	<1%
<i>Other transport</i>	19	<1%	166	<1%
All other unintentional causes	697	12%	7,094	15%
<b>Assault/Abuse</b>	46	1%	227	1%
<b>Other/Undetermined Intent</b>	59	1%	274	1%
<b>Missing cause or intent</b>	98	2%	1,047	2%
<b>Total Injury-Related Cases</b>	5,657	100%	48,324	100%

1. Hospital discharges and emergency department visits. Counts of less than 11 are suppressed due to data confidentiality guidelines.

2. Subcategories with less than 11 cases were combined with the "other" category for that injury type.



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### Massachusetts Child Injury Prevention Activities

The mission of the MA Injury Prevention and Control Program (IPCP) is to reduce the rates of injuries at home, at school, in the community, on the road, and at play, and to improve emergency medical services for children. Childhood injury prevention has long been a focus of the IPCP and Massachusetts has the lowest rates of childhood death from injury of any state in the country. Working with the *Massachusetts Prevent Injuries Now Network* (MassPINN), the IPCP has identified childhood injury prevention as one of the four priority areas of its strategic plan.

Two areas of major focus in this plan are infant safe sleep/addressing Sudden Unexpected Infant Death (SUID) and sports-related head injuries. The IPCP is also working with the Massachusetts Home Visiting Initiative to develop and implement an injury prevention training curriculum for all home visitors. This training focuses on preventing injuries among children ages 0-5 and covers a range of injury prevention topics including: poisoning, drowning, choking, fire and burns, falls and safe sleep.



### Massachusetts Home Visiting Initiative

The Massachusetts Department of Public Health (DPH) is the lead agency for the Maternal, Infant and Early Childhood Home Visiting Program, known in Massachusetts as the MA Home Visiting Initiative (MHVI). DPH works in collaboration with state partners to implement evidence-based home visiting programs in 17 high risk communities. These communities were identified based on indicators of maternal and infant health, child development and school readiness, family economic self-sufficiency, child maltreatment, domestic violence and substance use.

Table 2 shows the number of injury-related hospital discharges and ED visits in 2012 in the 17 communities participating in the MA Home Visiting Initiative. The vast majority of these injuries were unintentional.

MHVI Communities	Number of Injury Cases <sup>1</sup>	
	Hospital Discharges	ED Visits
Boston	98	5,209
Brockton	17	1,240
Chelsea	<11	341
Everett	<11	458
Fall River	<11	1,285
Fitchburg	<11	357
Holyoke	13	656
Lawrence	29	1,342
Lowell	34	1,308
Lynn	12	1,029
New Bedford	<11	1,134
No. Adams/Pittsfield	12	714
Revere	13	438
Southbridge	<11	263
Springfield	42	2,208
Worcester	49	2,016
<b>MA Total</b>	<b>788</b>	<b>53,193</b>

1. Counts less than 11 are suppressed due to confidentiality guidelines.

**Table 2: Injury-Related Hospital Discharges and ED Visits, Children Ages 0-5, MHVI Communities, 2012**



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### Massachusetts Home Visiting Initiative (cont.)

The Massachusetts Home Visiting Initiative is implementing interventions at the individual/family, community and state levels. At the individual and family level, the 17 MHVI communities have expanded their home visiting services using one or more of the following evidence-based programs:

- **Healthy Families America** (ages prenatal-3) is designed to help families manage life's challenges by building on their strengths. The program model offers weekly home visits, screenings and assessments, parent support groups, father involvement programs, and other services. The Healthy Families program in Massachusetts primarily serves first-time teen parents age 20 and under. However, through the MHVI program, some participating communities are serving first-time parents of any age.
- **Healthy Steps** (ages 0-3), which typically operates out of a family or pediatric practice, is a home visiting and center-based medical home program that emphasizes close relationships between pediatric clinicians, Healthy Steps Specialists, and parents to address the developmental and emotional needs of young children.
- **Early Head Start** (ages prenatal-3) is a multi-service early childhood program that provides home visiting to income eligible families, many of whom have multiple risk factors, to promote school readiness and enhance children's physical, dental, nutritional, social/emotional and cognitive development.
- **Parents as Teachers** (ages prenatal-5) provides family-centered home-based services to promote child health, development and school readiness through an evidence-based parent education curriculum, annual health and developmental screening, and referrals to support parents in their role as teachers.

The Massachusetts Home Visiting Initiative is also working with local partners in each of the 17 high risk communities to develop a comprehensive, coordinated system of early childhood services. At the state level, MHVI is engaging civic leaders, leveraging fiscal resources, and building relationships with a broad array of service providers to provide a continuum of high quality early childhood care for all Massachusetts families.

#### Data Notes

All data in this report are based on the CDC injury definition, whereby injury cases are selected based on ICD-10 underlying cause codes (deaths), ICD-9-CM primary diagnosis codes (hospitalizations), or either an ICD-9-CM primary diagnosis code or an external cause of injury code (ED visits). Transfers and in-hospital deaths are included in hospitalization and ED visit data. Results may therefore differ from those in reports that use Massachusetts criteria to define injury cases. Observation stays are also not included with hospitalization data. All data in this report are based on calendar rather than fiscal year. All injuries are considered unintentional unless otherwise specified.

#### Data Sources

**Deaths:** MA Registry of Vital Records and Statistics, MA Department of Public Health

**Hospitalizations:** MA Inpatient Hospital Discharge Database, Center for Health Information and Analysis

**ED Visits:** MA Emergency Department Discharge Database, Center for Health Information and Analysis

**Population:** Missouri Census Data Center, Population Estimates by Age Query System, accessed 9/23/14



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### Resources

#### **Injury Surveillance Program (ISP)**

Massachusetts Department of Public Health  
Bureau of Community Health and Prevention  
250 Washington Street, 4<sup>th</sup> Floor  
Boston, MA 02108  
Phone: (617) 624-5648; Email: [MDPH-ISP@state.ma.us](mailto:MDPH-ISP@state.ma.us)  
[www.mass.gov/dph/isp](http://www.mass.gov/dph/isp)

This report and other MA injury data are available on-line at the Injury Surveillance Program website. Custom data analysis can also be requested by contacting the Injury Surveillance Program directly.

#### **Injury Prevention and Control Program (IPCP)**

Massachusetts Department of Public Health  
Bureau of Community Health and Prevention  
250 Washington Street, 4<sup>th</sup> Floor  
Boston, MA 02108  
(617) 624-5413  
[www.mass.gov/dph/injury](http://www.mass.gov/dph/injury)

#### **MA Home Visiting Initiative (MHVI)**

Massachusetts Department of Public Health  
Bureau of Family Health and Nutrition  
250 Washington Street, 5<sup>th</sup> Floor  
Boston, MA 02108  
(617) 624-5976  
Email: [Claudia.Catalano@state.ma.us](mailto:Claudia.Catalano@state.ma.us)  
[www.mass.gov/dph/homevisiting](http://www.mass.gov/dph/homevisiting)

#### **Regional Center for Poison Control and Prevention**

Boston Children's Hospital  
300 Longwood Avenue, Ida C. Smith Building  
Boston, MA 02115  
Emergency line: 1-800-222-1222  
Business line: (617) 355-6609  
[www.maripoisoncenter.com](http://www.maripoisoncenter.com)

#### **Children's Safety Network**

[www.childrenssafetynetwork.org](http://www.childrenssafetynetwork.org)

#### **Safe Child Program**

[www.cdc.gov/safechild](http://www.cdc.gov/safechild)

#### **Safe Kids Worldwide**

[www.safekids.org](http://www.safekids.org)



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